

Please amend the above-identified application as follows:

PRM
3 Dec 93

In The Specification 7

At page 1, line 15, please delete "and" and insert

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7

At page 1, line 15, after "Serial No. 737,899 filed July 26, 1991", please insert --and Serial No. 739,143 filed August 1, 1991--.

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IN THE CLAIMS

Please cancel claims 1-42.

Please enter new claims 45-82.

--45! A recombinant plant viral nucleic acid derived from a plus sense, single stranded RNA plant virus that naturally has a subgenomic promoter, the recombinant plant viral nucleic acid comprising:

a first viral subgenomic promoter operably joined to a first nucleic acid sequence that codes for a plant viral coat protein wherein the transcription of the first nucleic acid sequence is regulated by the first plant viral subgenomic promoter; and

a second plant viral subgenomic promoter operably joined to a second nucleic acid sequence which is not naturally associated with said plus sense single stranded RNA plant virus wherein transcription of the second nucleic acid sequence is regulated by the second plant viral subgenomic promoter;

wherein the first and second viral subgenomic promoters possess different nucleic acid sequences thereby

100-11

enabling the recombinant plant viral nucleic acid to systemically transcribe the second nucleic acid in the host plant.

46. A recombinant plant viral nucleic acid of claim 45, wherein the first plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

47. A recombinant plant viral nucleic acid of claim 46, wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

48. A recombinant plant viral nucleic acid of claim 46, wherein the second plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

49. A recombinant plant viral nucleic acid of claim 45, wherein the first plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

50. A recombinant plant viral nucleic acid of claim 49, wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

51. A recombinant plant viral nucleic acid of claim 49, wherein the second plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

52. A recombinant plant viral nucleic acid of claim 45, further comprising a third ¹ ~~1~~ subgenomic promoter and a

last H.2
~~third nucleic acid sequence wherein the third subgenomic promoter possesses a different nucleic acid sequence than the first and second subgenomic promoter, thereby enabling the recombinant plant viral nucleic acid to systemically transcribe the third nucleic acid in the host plant.~~

Claim 53
53. A recombinant plant viral nucleic acid of claim 45 wherein the recombinant plant viral nucleic acid is selected from the group consisting of tobamoviruses, bromoviruses, tobaviruses, furoviruses, cucumoviruses, hordeiviruses, potexviruses, tymoviruses, luteoviruses, carmoviruses, tombusviruses and sobemoviruses.

Claim 54
54. A recombinant plant viral nucleic acid of claim 53 wherein the recombinant plant viral nucleic acid is a tobamovirus.

Claim 55
55. A recombinant plant viral nucleic acid of claim 54 wherein the recombinant plant viral nucleic acid is a TMV virus.

Claim 56
56. A host plant infected by the recombinant plant viral nucleic acid of claim ~~45~~.

Claim 57
57. A host plant infected by the recombinant plant viral nucleic acid of claim ~~46~~.

Claim 58
58. A host plant infected by the recombinant plant viral nucleic acid of claim ~~47~~.

Claim 59
59. A host plant infected by the recombinant plant viral nucleic acid of claim ~~48~~.

Claim 60
60. A host plant infected by the recombinant plant viral nucleic acid of claim ~~49~~.

16 61 A host plant infected by the recombinant plant
viral nucleic acid of claim 50.

17 62 A host plant infected by the recombinant plant
viral nucleic acid of claim 51.

18 63 A host plant infected by the recombinant plant
viral nucleic acid of claim 52.

19 64 A host plant infected by the recombinant plant
viral nucleic acid of claim 53.

65. A host plant infected by the recombinant plant
viral nucleic acid of claim 54.

20 66. A host plant infected by the recombinant plant
viral nucleic acid of claim 55.

21 67. A process for systemically transcribing a nucleic
acid sequence in a host plant comprising:

(a) infecting a host plant with a recombinant
plant viral nucleic acid derived from a plus sense,
single stranded RNA plant virus that naturally has a
subgenomic promoter, the recombinant plant viral
nucleic acid comprising:

a first viral subgenomic promoter operably joined
to a first nucleic acid sequence that codes for a
plant viral coat protein wherein the transcription
of the first nucleic acid sequence is regulated by
the first plant viral subgenomic promoter; and

a second plant viral subgenomic promoter operably
joined to a second nucleic acid sequence which is

not naturally associated with said plus sense single stranded RNA plant virus wherein transcription of the second nucleic acid sequence is regulated by the second plant viral subgenomic promoter;

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wherein the ~~first and second viral subgenomic promoters~~ possess different nucleic acid sequences thereby enabling the recombinant plant viral nucleic acid to systemically transcribe the second nucleic acid in the host plant; and

(b) growing the infected plant wherein the second nucleic acid sequence is systemically transcribed.

22
68. A process according to claim ~~21~~ which further comprises isolating the transcribed second nucleic acid sequence.

23
69. A process according to claim ~~67~~ comprising the further step of systemically expressing a protein encoded by the second nucleic acid sequence.

24
70. A process according to claim ~~69~~ which further comprises isolating the expressed protein.

25
71. A process according to claim ~~67~~ which further comprises forming a secondary metabolite within the plant. *24*

26
72. A process according to claim ~~71~~ which further comprises isolating the secondary metabolite.

27
73. A process according to claim ~~67~~ wherein the first plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

~~28~~ 24. A process according to claim ~~23~~ ²⁷ wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

~~29~~ 25. A process according to claim ~~27~~ ²¹ wherein the second plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

~~30~~ 26. A process according to claim ~~27~~ ²¹ wherein the first plant viral subgenomic promoter is not naturally associated with said plus sense single stranded RNA plant virus.

~~31~~ 27. A process according to claim ~~26~~ ²⁶ ³¹ wherein the nucleic acid sequence that codes for a plant viral coat protein is naturally associated with said plus sense single stranded RNA plant virus.

~~32~~ 28. A process according to claim ~~27~~ ²¹ ³¹ wherein and the second plant viral subgenomic promoter is naturally associated with said plus sense single stranded RNA plant virus.

John G 29 79. A recombinant plant viral nucleic acid of claim 67 wherein the recombinant plant viral nucleic acid is selected from the group consisting of tobamoviruses, bromoviruses, tobaviruses, furoviruses, cucumoviruses, hordeiviruses, potexviruses, tymoviruses, luteoviruses, carmoviruses, tombusviruses and sobemoviruses.

H 34 *Process* 80. A ~~recombinant plant viral nucleic acid~~ of claim ~~78~~ ²⁹³³ wherein ~~the recombinant plant viral nucleic acid~~ is a tobamovirus.

John H

John G